

REMARKS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested. Claims 1 and 13 are amended without prejudice or disclaimer. Claims 2-29 and 31-35 are cancelled without prejudice or disclaimer. Claims 36-42 are added.

Response to Argument

Assignee thanks the Examiner for the detailed arguments which helps Assignee to understand the position of the Patent Office with respect to the claims in view of the prior art. Assignee has provided the claim amendments to address and clarify the interpretation of the various claim limitations and clear up some of the current issues at this stage of prosecution.

Assignee has amended claim 1 to clarify that regions of interest represent less than a full frame. Assignee submits that this concept is clearly not taught in Linzer et al. and according to the interpretation in the Office Action of the teachings of Linzer et al., and with reference to Figure 3 of Linzer et al., video 1 (29-1) is encoded by encoder 1, video 2 (29-2) is encoded by encoder 2 and so forth. Assignee attaches hereto a figure that illustrates the Examiner's interpretation and the teachings of Linzer et al.'s Figure 3. The group of frames with video 0, video 1, and video 2 are each encoded by an encoder 0, encoder 1, and encoder 2. In this case, each group of multiple frames of the different videos is sent to separate encoders. Assignee submits that in no place in Linzer et al. is this concept of the regions of interest representing less than a full frame taught or suggested. The entire frames of the videos are encoded by the respective encoder.

Assignee next turns to the teachings of Lee et al. Lee et al. teach (Figure 33), sending different video objects to different coders. Thus, once an object is defined in block 1502, objects are sent to the different coders for coding. Lee et al.'s disclosure is also illustrated in the

attached figure with their concepts identified by the intermittent line. Assignee notes that Lee et al. and Linzer et al. treat each frame differently. Linzer et al. send each series of frames defining a video to different encoders (shown as encoder 0, encoder 1 and encoder 2 in the attached Figure). In contrast, Lee et al. take different objects within a frame and send those different objects to different coders 1504, 1506, 1508.

Assignee shall next explain why there is insufficient suggestion or motivation to combine Lee et al. with Linzer et al. in the manner proposed in the Office Action. Assignee next respectfully notes that on page 5 of the Office Action the Examiner asserts that in our response in October 2008 that we argued that “Lee teaches away from MPEG-2, and leads one to not combine Lee with Linzer, and there is no suggestion to combine Lee and Linzer.” (Emphasis added.) Assignee submits that we never argued that there is “no suggestion” to combine Lee et al. and Linzer et al. Indeed, on page 15 of our response we argued that “one of skill in the art would clearly not have sufficient motivation or suggestion, by a preponderance of the evidence, to incorporate the MPEG-2 compression approach....” (Emphasis added.) In other words, Assignee is appropriately applying the preponderance of the evidence standard to the analysis. It becomes easy to refute an argument that there is “no suggestion” to combine the references. However, it is the preponderance of the evidence that is in Assignee’s favor and 10% of the evidence is not necessary under the law. Only 51% of the evidence is required under the appropriate standard.

Next, Assignee respectfully submits that its argument that Lee et al. expressly criticizes the use of the MPEG-2 compression approach is left unanswered in the current Office Action. The Office Action states on page 5 “both Lee and Linzer are considered to be combinable because Lee and Linzer pertain to the same video compression/decompression MPEG-2.” Assignee submits that this analysis fails to address or acknowledge our substantive argument.

Indeed, Lee et al. define MPEG-2 as one of the “conventional video compression techniques” in column 1, lines 43-51. In other words, Lee et al., in their Background of the Invention, discuss various conventional video compression techniques including MPEG-2 (and MPEG-1 and H.26X) and explain the problems with these approaches. They specifically discuss the issues with MPEG-2 starting at column 1, line 64. They explain thereafter that large transformation block errors E arise in block-based video compression methods for a number of reasons. After explaining these problems, they again conclude in column 2, line 59, that “conventional video compression methods appear to be inherently limited due to the size of the transformation errors E.”

Thus, because MPEG-2 is identified as one of the conventional video compression techniques in column 1, Lee et al. introduce their entire invention as stating “[MPEG-2] methods appear to be inherently limited....” In response to this argument, the Office Action cites on page 5 Lee et al.’s column 1, line 46. Assignee has just cited this portion in that it is the portion in which Lee et al. explain list MPEG-2 as one of the conventional video compression techniques. What is ignored in the Office Action is the fact that this reference to MPEG-2 was a criticism of MPEG-2. Thus, while it is generally correct to say that Lee et al. mentions MPEG-2, Assignee submits that the argument that there is a suggestion or motivation within the teachings of Lee et al. that the teachings of MPEG-2 should be applied or utilized is not persuasive. Indeed, Lee et al. represents a departure from the conventional video compression techniques of MPEG-2 into something new and different because there were deficiencies found within that standard. Assignee respectfully requests that the Examiner recognize that this fact is in Assignee’s favor and should not and cannot be ignored in an appropriately objective obviousness analysis.

Assignee notes that the Office Action on page 5 cites Linzer et al. also in column 1, line 46 in which they mention MPEG-2. Again, when the actual teachings and suggestions that can

be drawn from the discussion of MPEG-2 in this reference, the same issue arises. For example, Linzer et al. explain in column 1, line 38 that MPEG-2 is one of the examples of a statistical multiplexing encoding system. They explain in columns 1 and 2 how the multiplexer receives encoded programs from multiple encoders and forms a bitstream. By explaining again that MPEG-2 represents a conventional statistical multiplexing coding system, Linzer et al. in column 2, line 32 states:

“a significant problem with the conventional statistical multiplexer 10 is that bit allocation decisions are generally made using only posteriori statistics. The statistics computer 18 therefore only receives information about pictures of the n video bit streams that have already been encoded, and must use this information to allocate bits among those pictures that have yet to be coded. This reliance on a posteriori statistics can result in periods of poor video quality when the video bit streams are conventionally demultiplexed, decoded and displayed.”
(Emphasis added)

The conventional multiplexer is classified as posing a “significant problem” and produces “poor video quality”.

Additionally, the reference to MPEG-2 in column 1, line 46 is also in connection with the Perkins and Arnstein article which discusses the statistical multiplexing coding system. This article is further addressed in column 2, line 52 - column 3, line 10. How is it treated? It is criticized. Column 3 states “as noted by Perkins and Arnstein reference, it is difficult to find statistic metrics which lead to an appropriate allocation of bit rates.” They explain that if the statistic metric employed by a statistic gatherer significantly underestimates the needs of the program for which it gathers statistics, then the video bit stream of that particular program will be encoded at a significantly lower quality level relative to the other programs. This disparity in quality level will only be corrected when the nature of the video bit stream of the program changes such that the statistics gathered for that program need more accurately reflect its encoding needs. Thus, when MPEG-2 is referenced with respect to the Perkins and Arnstein article, there is an issue with the disparity and quality level which has to be corrected. Finally,

column 3 of Linzer et al. ends with the explanation that “there is a need for improved statistical multiplexing which is better able to maintain quality across multiple video bit streams.”

Accordingly, Assignee respectfully submits that the citation to Linzer et al. column 1, line 46 is actually a portion of the reference where the use of MPEG-2 is criticized. This clearly supports Assignee’s argument.

Assignee also notes that standard MPEG-2 encoders are referenced in columns 5 and 6 of the Linzer et al. for the possibility of use in the encoding application. For example, encoders 32-i shown in Figure 3 are taught in column 5, lines 56 and 57 to be operating in accordance with the MPEG-2 standard. The other aspects of Linzer et al. involve how the statistics are used outside of these encoders. Given that Lee et al. criticizes MPEG-2, one of skill in the art would not likely find Lee et al. suggesting to use a conventional MPEG-2 encoder for encoders 32-i.

Therefore, when the overall teachings and suggestions of each reference are analyzed, it becomes clear that (1) Lee et al. criticize the MPEG-2 standard when introducing their disclosure. Accordingly, one of skill in the art would not likely consider its teachings to be suggestive of the use of MPEG-2 principles. Next, Linzer et al. also are critical of MPEG-2 in their introduction with respect to statistical multiplexing encoding but use generic MPEG-2 encoders in part of their system. Assignee submits that one of skill in the art would not simply consider these to be combinable because they both “pertain” to MPEG-2. Assignee respectfully submits that that this argument ignores the expressed criticisms in Lee et al. and fails to be responsive to our substantive argument.

Assignee addresses the obviousness analysis issue from another standpoint. The Office Action on pages 3 and 4 concludes after discussing Lee et al. and Linzer et al. that “it would have been obvious to one of ordinary skill in the art to combine the teachings of Linzer into the system of Lee for permitting accurately, efficiently [sic] encoding [of] multiple video streaming

image data while maintaining high image quality, as suggested in Linzer's column 4, lines 39-42." Assignee again turns to the attached figured. As shown, the teachings of Linzer et al. in Figure 3 involve sending each video or group of frames to an encoder. Thus, frames 0, 1 and 2 of video 0 are shown as being encoded by encoder 0. Similarly, video 1 having frames 0, 1 and 2 are encoded by encoder 1 and so forth. This summarizes the teachings of Linzer et al.

If one were to combine these teachings with Lee et al., then the principles of Lee et al. would become unworkable and change the principle of operation of Lee et al. As shown in the attached figure, object 0 in frame 0 is encoded by object 0 by encoder 1504. Object 1 in frame 0 is encoded by encoder 1506 and object 2 in frame 0 is encoded by encoder 1508. Linzer et al.'s teachings involve taking all of frame 0 (with frames 1 and 2) and encoding them by encoder 0. Assignee respectfully submits that combining these references would necessarily involve encoding the objects within frame 0 several times. The objects (because they are in frame 0) would be encoded by encoder 0 of Linzer et al. as well as being encoded by the different encoders of Lee et al. Assignee submits that such an approach of encoding these objects multiple times would not "increase the accuracy or efficiency" of encoding multiple video streaming image data while maintaining high image quality as the Office Action concludes. Indeed, it certainly wouldn't be efficient to encode portions of the frames multiple times. Assignee has provided this attached drawing to show what would result if these teachings were combined in the manner suggested in the Office Action.

Application of the principles set forth by the Supreme Court in KSR amplifies Assignee's position. MPEP 2141 explains the analysis under KSR. Here, the Supreme Court stated that "when considering obviousness of a combination of known elements, the operative question is 'whether the improvement is more than the predictable use of prior art elements according to their established functions.'" MPEP 2141, Section I. By applying the Supreme Court's

“operative question,” Assignee submits that one of skill in the art would not likely combine these teachings according to their established functions. Indeed, combining them in their established functions would result in multiple encoding of the objects within the frames of a video. This of course does not result in the predictable use of prior art elements according to their established functions. Something additional would have to be modified to make this combination actually increase the accuracy and efficiency of encoding multiple video streaming image data. However, in making such modifications, Assignee respectfully submits that in either Lee et al. or Linzer et al.’s case, such change would lead to a change in the principle of operation of the prior art invention being modified, as we have previously argued. See, MPEP 2143.01, Sections V, VI.

In addition, Assignee notes that the statement on pages 3 and 4 of the Office Action with respect to how one of skill in the art would actually combine these teachings is devoid of any real analysis of what the resulting structure would look like. Therefore, Assignee does not know how the Examiner would propose actually incorporating the teachings of Linzer et al. into the system of Lee et al. Since no such analysis is provided, Assignee has represented the teachings of Lee et al. and Linzer et al. according to their established functions which illustrates how the combination of prior art as performed by the basic analysis in the Office Action would necessarily have to lead to a change in the principle of operation of the prior art invention being modified. Assignee notes that the obviousness analysis is repeated on pages 8 and 12 of the Office Action using the same language.

Accordingly, Assignee respectfully submits that we have provided substantive evidence and a detailed analysis of why one of skill in the art would not, by a preponderance of the evidence, combine these references. One would not combine the teachings of Linzer et al. into the system of Lee et al. for the purpose of permitting accurate and efficient coding of multiple

video streaming image data because in so doing, the proposed efficiency gains cannot be established without changing the principle of operation of Lee et al. and/or Linzer et al. Accordingly, Assignee respectfully submits that the present claims are patentable and in condition for allowance.

Rejection of Claims 27-29 Under 35 U.S.C. §101

The Office Action rejects claims 27-29 under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Assignee has cancelled claims 27-27 without prejudice or disclaimer. Accordingly, Assignee respectfully submits that this rejection is currently moot.

Rejection of Claims 1-5, 7-16, 18-22 and 27-35 Under 35 U.S.C. §103(a)

The Office Action rejects claims 1-5, 7-16, 18-22 and 27-35 under 35 U.S.C. §103(a) as being unpatentable over Lee et al. (U.S. Patent No. 5,748,789) ("Lee et al.") in view of Lizner et al. (U.S. Patent No. 6,094,457) ("Lizner et al."). Assignee incorporates the arguments set forth above and respectfully submit that the combination of claim amendments and arguments clarify the issues raised in the Office Action.

Assignee further notes that the Office Action on page 10 argues that Lee et al. disclose in column 42, lines 47-61, "that each video object has an arbitrary shape, and that each video object is predefined according to its shape, thus, each video object or video portion is routed or assigned a predefined encoder model or by a mask of alpha values or binary mask." Assignee respectfully submits that Lee et al. fail to teach what the Office Action asserts that it teaches. What is referenced in the Office Action is the object definition block 1502 of the encoder. Column 42, starting at line 34, teaches that this block "determines how to separate this input video sequence into objects. The object definition process generally includes identifying separate objects in the input video sequence and defining the shape of these objects. At the end of this process, an

object has shape information and is associated with a bounding rectangle that encloses the object.” In other words, clearly the identification of the shape information occurs “at the end of this process.” Thus, the Office Action interpretation on page 10 that each object is “predefined according to its shape” is incorrect. Rather than being predefined, the shape is clearly identified at the conclusion of the object definition block 1502.

Next, the process in the object definition block in which it concludes with the shape information does not lead to the conclusion that “each video object or video portion is routed or assigned a predefined encoder model by a mask of alpha values or a binary mask.” Assignee has repeatedly identified that the coding units 1504-1508 are not taught as being predefined, not taught as receiving a predefined type of video object and so forth. These are each taught as identical coding units without any delineation between them. Thus, Assignee respectfully traverses the analysis that the Office Action concludes on page 10 that there is a predefined model associated with the different encoders. Therefore, Assignee respectfully submits that even if combined, Lee et al. fail to teach this particular claim limitation. Accordingly, Assignee respectfully submits that the present claims are patentable and in condition for allowance.


Finally, Assignee has made further amendments to the claims and added new claims 36-42. These claims include further limitations that distinguish from the cited art. Accordingly, Assignee submits that this application is patentable and in condition for allowance.

CONCLUSION

Having addressed all rejections and objections, Assignee respectfully submits that the subject application is in condition for allowance and a Notice to that effect is earnestly solicited. If necessary, the Commissioner for Patents is authorized to charge or credit the **Novak, Druce & Quigg, LLP, Account No. 14-1437** for any deficiency or overpayment.

Respectfully submitted,

Date: February 9, 2009

By:  _____

Correspondence Address:
Customer No. 83224

Thomas M. Isaacson
Attorney for Assignee
Reg. No. 44,166
Phone: 410-286-9405
Fax No.: 410-510-1433